

Exhibit B



TUOLUMNE UTILITIES DISTRICT

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August 28, 2013

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RE: Woods Creek Discharge Plan

Please find the enclosed "Woods Creek Discharge Plan" as required under the Consent Decree. If you have any questions regarding this submittal please contact me at (209) 532-5536 ext. 524.

Respectfully,

Leonard Mauro
Operations Manager

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TUOLUMNE UTILITIES DISTRICT

August 28, 2013

WOODS CREEK DISCHARGE PLAN

Per Section VII of the Consent Decree between the California Sportfishing Alliance and the Tuolumne Utilities District (TUD or “District”), the District is to develop a plan to ensure that treated effluent discharged to Woods Creek meets all applicable terms, limitations, and conditions of the 2008 NPDES Permit , “Woods Creek Discharge Plan”. The following is a description of the District’s strategy to ensure compliance with the NPDES Permit.

BACKGROUND

Since the late 1970’s TUD has been operating a reclamation system with irrigation being it’s primary and preferred method for disposal of treated wastewater. The District also discharged to Woods Creek on an “as needed” basis in order to lower the level in Quartz Reservoir to avoid violating the freeboard requirements of Division of Safety of Dams or the Regional Water Quality Control Board. TUD’s discharges to Woods Creek, continued fairly regularly until the issuance of its current NPDES Permit in 2008.

The District has only released to Woods Creek 12 out of 23 years, since 1990. Volumes discharged have varied from 16 acre-feet to a maximum of 529 acre-feet. Prior to 2008, the District never made a concerted effort to avoid discharging. Since the issuance of the 2008 NPDES permit in 2008, the District has only discharged during one season. That discharge occurred intermittently between February 18, 2011 and April 14, 2011 and coincided with a year where Sonora experienced 51 inches of rainfall. Sonora’s normal annual rainfall is 32 inches. The District has not discharged since April 14, 2011.

The 2008 NPDES permit contained new effluent limitations for some constituents that are financially infeasible for the District to achieve. Fortunately, the 2008 NPDES Permit and subsequent Time Schedule Order contained interim effluent limitations which allowed for TUD and Jamestown Sanitary District to continue discharging at their current treatment level until the permit expires on October 1, 2013.

In anticipation of the new effluent limitations being enforced, in 2009 TUD embarked upon a study to determine which method of disposal would be of most benefit to its customers. In 2009, Kennedy Jenks Consultants completed a study in which the preferred alternative for disposal was to maintain a secondary MPN-23 level of wastewater treatment and to focus the District’s financial resources in expanding its storage and irrigation areas.

COMPLIANCE STRATEGY

It is the District’s intention to not renew its NPDES permit when it expires on October 1, 2013. This effectively means that the District will not be allowed to discharge water after that date. By not

discharging to Woods Creek the District will eliminate the risk associated with violating effluent limitations for copper, zinc, and ammonia, along with the other constituents listed in the permit.

The ability to transition from occasional and seasonal surface water discharge to 100% land disposal rests on the accuracy and reliability of a water balance. A detailed water balance has been developed and calibrated against field observations to verify that it reflects “real life” conditions.

WATER BALANCE

The water balance takes into account the following factors:

Inflows to the Reclamation System

- Avg. daily flow (ADF) from users
- Inflow and Infiltration (I&I) into the sewer collection system
- Direct runoff into Quartz Reservoir from its drainage basin as a function of rainfall
- Future growth in service connections

Outflows from the Reclamation System

- Irrigation (both spray and flood) upstream of Quartz Reservoir
- Irrigation (both spray and flood) downstream of Quartz Reservoir
- Evaporation as a function of the pan evaporation rate and the prevailing reservoir surface area
- Reservoir seepage is considered zero.

Other factors that influence system performance

- Ramp up time for irrigation systems (Irrigation systems typically take 2-3 weeks to reach full demand).
- Ramp down time for irrigation systems (Irrigation systems typically take 2-3 weeks to be fully decommissioned for the winter)
- Average application rates in acre-feet/acre per season for pasture grass
- Duration of irrigation season for both “Normal” Year and 1:100 rainfall years
(A “Normal” Year has 32.74 inches of rain. A 1:100 Year has 59.80 inches of rain.)
- Irrigation start and end dates for both the “Normal” Year and 1:100 rainfall years.

Model Sensitivity and Calibration

The model is very sensitive to the application rates in acre-feet/acre of land. The water balance uses 3.8 acre-feet/acre per season as an average “Normal” Year application rate for pasture grass for future land application sites. The application rate used for existing areas is the site specific average for that irrigation area for all of the years for which data was available. The application rate following a 1:100 rainfall year is reduced to 3.2 acre-feet/acre. Under no

circumstance does the application rate being used in the model result in a loading rate that exceeds accepted agronomic rates of nitrogen for pasture grass.

The model is also very sensitive to the irrigation start and end dates and the corresponding duration of the irrigation season. The model uses a conservative duration based upon the average start and end dates since 2002. The irrigation season is typically shorter following a 1:100 rainfall year and further compounds the need for additional storage and land application areas.

The model is sensitive to Inflow and Infiltration (I&I). To estimate the volume of I&I that the collection system would “take on” during a 1:100 rainfall year, historical information was compared. The average rainfall for the Sonora area is 32.74 inches. In 2009-2010 a total of 32.82 inches fell in Sonora. Contrast that rainfall total with the following year (2010-2011), when 50.12 inches of rain fell. Inflow into the District’s Regional Wastewater Treatment Facility increased by approximately 10% over 2009-2010 due primarily from the increase in rainfall. For modeling purposes, I&I during the 1:100 rainfall year is assumed to be 10% higher than flows that would result in a Normal Year.

The model outputs were graphed and displayed as Quartz Reservoir storage as a function of time. The theoretical (model) values were compared against a graph of actual Quartz Reservoir level in 2010-2011. The model predicts very similar slopes on the Quartz Reservoir fill and empty cycles. The model appears to reflect reality well; however, each irrigation season will have subtle differences related to individual rancher behavior, irrigation start/stop times, ramp up and down times, the temporal distribution of rainfall, and the amount of evaporation that occurs over the course of the summer.

The water balance answers the following questions:

- How much storage is needed for both a “Normal” and 1:100 rainfall year?
- How much land acreage is required to dispose of the entire volume in one irrigation season for both the “Normal” and 1:100 rainfall year? (The goal is to have zero carryover storage.)
- How many acres of land disposal area need to remain fallow during a “Normal” year due to having an excess of irrigated land in order to accommodate the 1:100 rainfall condition?
- What is the impact of service connection growth on the Reclamation System and how much capacity remains in the system?

WATER BALANCE RESULTS

In order to accommodate a 2013 base 1:100 rainfall year TUD needs to have:

- ~~1,387~~
- Storage Capacity: ~~1,390~~ acre-feet
 - Irrigated Acres: ~~676~~ acres
~~698~~

This would allow for TUD to store all inflows during the winter and to empty the reservoir during the summer irrigation season so that the next rainfall year begins with the reservoir as low as possible, ideally without any carryover storage.

Currently the District has:

- Storage Capacity: 1,666 acre-feet
- Irrigated Acres: 672 acres

Deficiencies for 1:100 rainfall year:

- Storage Capacity: 0 acre-feet
- Irrigated Acres: 26 acres

The reality is that if the District were to experience a 1:100 rainfall year there would be more than enough storage capacity to contain that singular event without the need to discharge. The worst-case scenario is not a single 1:100 rainfall year, but instead, multiple years of above average rainfall. If the reservoir is not emptied each year then some volume is carried over to the next year. When this pattern persists, storage volumes accumulate to the point that the District is unable to “catch up” and the risk of discharge increases.

Currently, the District has 276 acre-feet of surplus storage above what is needed for a 1:100 rainfall year. In fact, the District could experience a 1:100 rainfall year followed by another 1:100 rainfall year and still avoid the need to discharge. Even if no additional land was added to the Reclamation System, the earliest possible date that the District could need to discharge would be March or April 2017 and even that assumes a 1:100 rainfall year followed by a series of wetter than normal years. The likelihood of such a scenario is slim.

Projects are underway to address the deficiency in acreage and ensure TUD will be able to empty Quartz Reservoir each year.

FUTURE PROJECTS

Storage:

The District is in the final stages of completing the Quartz Reserve Pool Pumping Project at a cost of approximately \$1,000,000. A floating pump is being installed in the reservoir that will allow the District to lower the reservoir by approximately 20 feet, freeing up an additional 200 acre-feet of storage.

No other storage projects are planned at this time. The District has adequate storage capacity for the next 20 years assuming there is no reduction in I&I, no water conservation, and the District experiences connection growth averaging 0.65% annually. (Which is consistent with the District’s average connection growth from 1992-2011.)

Land Disposal: (All new land areas will also provide Dry Year Land Banking capabilities)

New Sprayfield A

This project involves development of 20.8 acres of land for spray irrigation. The system is currently in construction and is scheduled to be complete in November 2013. (It is already included as part of TUD's active irrigation area in the water balance.)

Private Party Irrigation Improvements

This project would convert approximately 30 acres of existing flood irrigated pasture land from ditch water to reclaimed water. Conceptual plans are complete and discussions with the landowner are on-going.

Jamestown Sanitary District Sprayfield

The District is also holding discussions with the Jamestown Sanitary District (JSD) to develop approximately 10 acres of irrigation sprayfield on lands that were previously irrigated. A timeline for these improvements has not yet been established; however, JSD is also regulated under the NPDES permit and it is in their best interest to let the permit expire.

West Ranch Sprayfield

The District owns 140 acres of land that was purchased in 2005 to be used for a future reclamation storage reservoir. Much of the land is sloped, but approximately 15 acres is suitable for irrigation. This system could be developed as early as Summer 2015.

New Sprayfield B

The District has met with a landowner who would like the District to develop a 15-20 acre sprayfield on his property. This project is tentatively scheduled to be constructed in Summer 2015.

Other Projects:

Pipe Lining and Rehabilitation

The District has agreed to expend \$350,000 annually toward sewer collection system improvements in accordance with the Consent Decree. One advantage to rehabilitating and replacing old pipeline is a reduction in the amount of I&I. At this time, it is difficult to predict the decreases in volume the will result from the improvements. During a 1:100 rainfall year about 10% of the flow into the system, or ~200 acre-feet, is associated with inflow and infiltration. As TUD rehabilitates and replaces old pipelines, especially in the City of Sonora, the amount of flow entering the system during rain events will decrease.

Water Conservation

TUD has experienced significant decreases in wastewater flows following water rate increases. The District has an active water conservation program. Decreases in indoor water use translate to less water needing to be treated, stored, and disposed of.

OPERATIONAL STRATEGIES

Off-Season Irrigation

Typically there are dry periods that last several weeks that occur during the Fall, Winter, and occasionally the Spring. These times present opportunities for the District to apply effluent on its own lands. Since TUD's newer irrigation systems are automated, it is feasible for us to quickly turn them "on" or "off" depending upon the weather forecasts. The advantage of "off-season" irrigation is that it reduces the critical storage demands, which usually occur when the reservoir reaches its maximum level in April or May. It also lessens the need for additional acreage that can only be used during the Summer months.

Early Start and/or Late End to Irrigation Season

Weather dictates the start and end of the irrigation season; however, ranchers frequently lag the weather by as much as a few weeks. The District will be encouraging users to start their irrigation system's up as early as possible and to continue irrigating right up to when a regular rainfall pattern is established in the Fall. Additionally, ranchers usually have a ramp up and ramp down time that involves blowing off pipelines, sprinkler heads, fixing any leads, and starting up pumps. Similarly, at the end of the season there is a drain down and winterization procedure. With encouragement from the District, we believe that the "ramp up" and "ramp down" procedures can be streamlined to maximize use of the reclaimed water.

Maximize Demands of Existing Land Application Areas

Some of the older irrigation systems are manually operated. Property owners that are older or have physical limitations maybe underutilizing their lands. The District may consider retrofitting manual irrigation system valves with automated valves that will allow the user to program in a more consistent and frequent pattern of use.

Manipulation of System Pressure to Influence Use

The District has the ability to manipulate water use by adjusting system pressures. A 16-inch pressure sustaining valve helps control pressure in the Upper Zone, above Quartz Reservoir. Slight increases in pressure can resulting in significant increases in water use over the course of an entire season. Conversely, if water is in short supply a slight reduction in system pressure will have the opposite effect.

Pressure in the Lower Zone, below Quartz, is controlled from our pump downstream of the reservoir.

CONCLUSION

This past year, due to low rainfall and aggressive irrigation, TUD was able to lower Quartz Reservoir to historic lows. By completing the Reserve Pool Pumping Project , the District will create 200 acre-feet of storage capacity. The District's goal will be to lower Quartz Reservoir to as low as possible in order to create buffer storage. The buffer storage will mitigate any risks posed by having consecutive ("back to back") high rainfall years and/or carryover storage.

Since TUD has a surplus of storage available, this buffer will provide TUD the time to develop the additional land application area and eliminate the need in the future to discharge to Woods Creek. In fact, TUD has a shortage of water to meet its current irrigation user demands. TUD will be looking to add to its Dry Year Land Bank through conversion of existing irrigation areas and by ensuring that all new contracts for irrigation water be conditioned that water deliveries depend on level in Quartz Reservoir and the availability of the water.

In sum, with the capacity the District already has and with the addition of several projects, already underway, the District will be able to avoid discharging in all water years except for those that exceed a 1:100 year return period as required by the State Regional Water Quality Control Board.

ATTACHMENTS

Water Balance for "Normal" Year and 1:100 Year

WATER BALANCE SUMMARY

Base Year	2013
1:100 Year I&I Allowance (Above Normal Year)	10%
Annual Connection Growth Rate	0.65%
TUD Unit Flow	137 gpd/esfr
THCSD Unit Flow	137 gpd/esfr
JSD Unit Flow	124 gpd/esfr
Projected Irrigation Demand (Normal Year)	3.8 AF/acre
Calculated Irrigation Demand (Wet Year)	3.2 AF/acre

Normal Year Irrigation Start Date:	15-Apr
Normal Year Irrigation End Date:	1-Nov
Wet Year Irrigation Start Date:	15-May
Wet Year Irrigation End Date:	1-Nov

Ramp Up Regime	
Week 1	25%
Week 2	50%
Week 3	100%

Ramp Down Regime	
Week 3	100%
Week 2	50%
Week 1	25%

PASSWORD: tud
PASSWORD for "yellow" cells only: editwb

RESULTS

Year =	2013											
Water Year =	Normal	Inflows to Quartz From				Total Inflow	Outflows from System				Reservoir Storage at End of Month	Reservoir Storage Surplus (Deficit)
Date	Rainfall	RWWTP	JSD	Quartz Drainage Basin	Irrigation	Upper Zone Irrigation	Lower Zone Irrigation	Reservoir Seepage	Reservoir Evaporation			
(in)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)			
January	6.22	150	20	26	195	0	0	0	3	3	510	1156
February	5.66	136	18	24	178	0	0	0	5	5	683	983
March	5.40	156	21	22	199	0	0	0	9	9	873	793
April	2.74	153	20	11	184	21	75	0	14	110	947	719
May	1.33	140	19	6	164	90	322	0	21	433	678	988
June	0.30	136	18	1	155	87	312	0	27	426	406	1260
July	0.03	141	19	0	159	90	322	0	33	445	121	1545
August	0.07	142	19	0	161	90	322	0	31	443	-161	1827
September	0.42	128	17	2	147	87	312	0	23	422	-436	2102
October	1.72	134	18	7	158	64	231	0	15	310	-588	2254
November	3.56	122	16	15	153	0	0	0	6	6	143	1523
December	5.29	139	18	22	179	0	0	0	3	3	318	1348
Totals	32.74	1675	221	136	2033	528	1897	0	191	2616		

Peak Storage Surplus or (Deficit) 691 AF

Volume Remaining in Storage at End of Irrigation Season 0 AF

Volume Short to Satisfy Irrigation Demands 591 AF

Acres Needed to Dispose of Surplus Volume 0.0 Ac

Acres Needed to Fallow to Eliminate Supply Shortage 156 Ac

Year =	2013											
Water Year =	1:100	Inflows to Quartz From				Total Inflow	Outflows from System				Reservoir Storage at End of Month	Reservoir Storage Surplus (Deficit)
Date	Rainfall	RWWTP	JSD	Quartz Drainage Basin	Irrigation	Upper Zone Irrigation	Lower Zone Irrigation	Reservoir Seepage	Reservoir Evaporation			
(in)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)			
January	9.28	182	24	39	244	0	0	0	3	3	723	943
February	10.92	165	22	45	233	0	0	0	5	5	951	715
March	11.39	183	24	47	255	0	0	0	9	9	1196	470
April	5.29	167	22	22	211	0	0	0	14	14	1393	273
May	0.65	147	19	3	169	24	87	0	21	133	1429	237
June	0.01	137	18	0	155	88	317	0	27	433	1152	514
July	0.00	141	19	0	159	91	328	0	33	452	859	807
August	0.03	142	19	0	161	91	328	0	31	450	570	1096
September	2.31	130	17	10	157	88	317	0	23	429	298	1368
October	5.41	142	19	23	184	66	235	0	15	315	84	1582
November	9.65	141	19	40	199	0	0	0	6	6	278	1388
December	4.86	166	22	20	208	0	0	0	3	3	482	1184
Totals	59.80	1842	244	249	2335	449	1612	0	191	2252		

Peak Storage Surplus or (Deficit) 279 AF

Volume Remaining in Storage at End of Irrigation Season 84 AF

Volume Short to Satisfy Irrigation Demands 0 AF

Acres Needed to Dispose of Surplus Volume 26 Ac

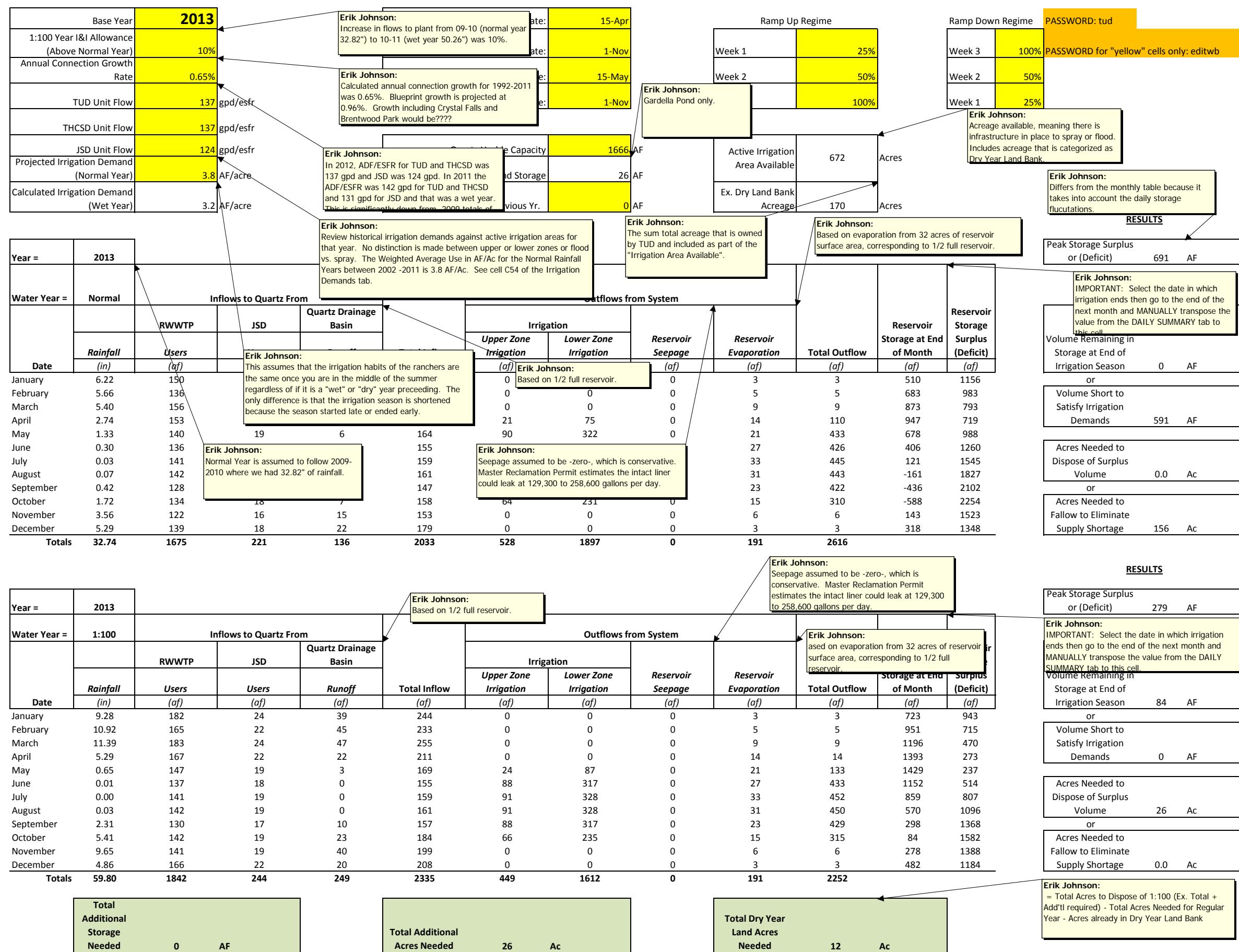
Acres Needed to Fallow to Eliminate Supply Shortage 0.0 Ac

Total Additional Storage Needed 0 AF

Total Additional Acres Needed 26 Ac

Total Dry Year Land Acres Needed 12 Ac

WATER BALANCE SUMMARY



**USER FLOWS +
INFLOW/INFILTRATION**

Base Year		2013
Average Annual Flow (Normal Water Year)	RWWTP	1.50 mgd
	JSD	0.20 mgd
1:100 Year I&I Allowance (Above Normal Year)		10%

Month	Days/Month	Peaking Factors	RWWTP Flow						JSD Flow						Total Regional Flow																																																																																																																																																																																																																				
			Normal Year			Additional Volume due to Rainfall			I&I Distribution			Wet Year			Normal Year			Additional Volume due to Rainfall			I&I Distribution			Wet Year			Normal Year																																																																																																																																																																																																								
			MGD	AF/month	AF/month	MGD	AF/month	AF/month	MGD	AF/month	AF/month	MGD	AF/month	AF/month	MGD	AF/month	AF/month	MGD	AF/month	AF/month	MGD	AF/month	AF/month	MGD	AF/month	AF/month																																																																																																																																																																																																									
			January	31	1.052	1.57	150	15	32	1.91	182	0.21	20	2	4	0.25	24	1.78	170	2.16	206	February	28	1.060	1.59	136	14	29	1.92	165	0.21	18	2	4	0.25	22	1.80	154	2.18	187	March	31	1.094	1.64	156	16	28	1.93	183	0.22	21	2	4	0.25	24	1.85	176	2.18	208	April	30	1.108	1.66	153	15	14	1.81	167	0.22	20	2	2	0.24	22	1.88	173	2.05	189	May	31	0.984	1.47	140	14	7	1.54	147	0.19	19	2	1	0.20	19	1.67	158	1.75	166	June	30	0.985	1.47	136	14	2	1.49	137	0.19	18	2	0	0.20	18	1.67	154	1.69	155	July	31	0.988	1.48	141	14	0	1.48	141	0.20	19	2	0	0.20	19	1.67	159	1.67	159	August	31	0.996	1.49	142	14	0	1.49	142	0.20	19	2	0	0.20	19	1.69	160	1.69	161	September	30	0.930	1.39	128	13	2	1.41	130	0.18	17	2	0	0.19	17	1.57	145	1.60	147	October	31	0.939	1.40	134	13	9	1.50	142	0.19	18	2	1	0.20	19	1.59	151	1.69	161	November	30	0.890	1.33	122	12	18	1.53	141	0.18	16	2	2	0.20	19	1.51	139	1.73	159	December	31	0.974	1.46	139	14	27	1.74	166	0.19	18	2	4	0.23	22	1.65
Total (MG)		546		601		72		79		618		680																																																																																																																																																																																																																							
Total (AF)		1675		167		167		1842		221		22		22		244		1896		2086																																																																																																																																																																																																															

Note: Septage hauler inputs are negligible. In 2012, they amounted to about 5,000 gpd.



	Month	Normal Yr		Wet Year		Avg. Historical Rainfall Distribution	% of Total Avg. Rainfall
		2009-2010	2010-2011	2010	2011		
January	January	2010	1.66	2011	1.72	6.22	19.0%
February	February	2010	1.67	2011	1.78	5.66	17.3%
March	March	2010	1.73	2011	2.39	5.4	16.5%
April	April	2010	1.75	2011	1.75	2.74	8.4%
May	May	2010	1.55	2011	1.63	1.33	4.1%
June	June	2010	1.56	2011	1.69	0.3	0.9%
July	July	2010	1.56	2011	1.62	0.03	0.1%
August	August	2010	1.57	2011	1.59	0.07	0.2%
September	September	2010	1.47	2011	1.53	0.42	1.3%
October	October	2009	1.48	2010	1.48	1.72	5.3%
November	November	2009	1.40	2010	1.48	3.56	10.9%
December	December	2009	1.54	2010	2.15	5.29	16.2%
	Average	1.58		1.74		32.74	
	% Difference Normal to Wet	110%					

Note: Peaking factors for wet years are primarily driven by rainfall and rainfall temporal distribution varies from year to year. Additional volume due to a 1:100 rainfall year amounts to approximately 10%. That 10% is spread out based on historical rainfall accumulations by month.

CONNECTION GROWTH

Assumptions

Source

Annual Conn. Growth Rate	0.65%	Tuolumne County Blueprint growth rate is 0.96%
TUD ESFR	8994	2008 Actual Data (Do not change)
JSD ESFR	1544	2008 Actual Data (Do not change)
THCSD ESFR	1574	2008 Actual Data (Do not change)

Unit Flow Factors

TUD gpd/ESFR	137.0
JSD gpd/ESFR	124.0
THCSD gpd/ESFR	137.0

	ESFR Growth					Average Annual Flow - Normal Year (MGD)					Acre-feet/Year - Normal Year (AF)							
	TUD	JSR	THCSD	Total	New ESFRs Yr over Yr	New ESFRs Cumulative (Base 2010)		TUD	JSR	THCSD	Total	RWTP	Total	TUD	JSR	THCSD	Total	
2008	8994	1544	1574	12112				1.23	0.19	0.22	1.45	1.64		1381	215	242	1838	
2009	9052	1554	1584	12191	79			1.24	0.19	0.22	1.46	1.65		1390	216	243	1850	
2010	9111	1564	1595	12270	79		0	1.25	0.19	0.22	1.47	1.66		1399	217	245	1862	
2011	9171	1574	1605	12350	80		80	1.26	0.20	0.22	1.48	1.67		1408	219	246	1874	
2012	9230	1585	1615	12430	80		160	1.26	0.20	0.22	1.49	1.68		1418	220	248	1886	
2013	9290	1595	1626	12511	81		241	1.27	0.20	0.22	1.50	1.69		1427	222	250	1898	
2014	9351	1605	1636	12592	81		322	1.28	0.20	0.22	1.51	1.70		1436	223	251	1910	
2015	9411	1616	1647	12674	82		404	1.29	0.20	0.23	1.51	1.72		1445	225	253	1923	
2016	9472	1626	1658	12756	82		486	1.30	0.20	0.23	1.52	1.73		1455	226	255	1935	
2017	9534	1637	1669	12839	83		569	1.31	0.20	0.23	1.53	1.74		1464	228	256	1948	
2018	9596	1647	1679	12923	83		653	1.31	0.20	0.23	1.54	1.75		1474	229	258	1961	
2019	9658	1658	1690	13007	84		737	1.32	0.21	0.23	1.55	1.76		1483	230	260	1973	
2020	9721	1669	1701	13091	85		821	1.33	0.21	0.23	1.56	1.77		1493	232	261	1986	
2021	9784	1680	1712	13176	85		906	1.34	0.21	0.23	1.58	1.78		1503	233	263	1999	
2022	9848	1691	1723	13262	86		992	1.35	0.21	0.24	1.59	1.79		1512	235	265	2012	
2023	9912	1702	1735	13348	86		1078	1.36	0.21	0.24	1.60	1.81		1522	237	266	2025	
2024	9976	1713	1746	13435	87		1165	1.37	0.21	0.24	1.61	1.82		1532	238	268	2038	
2025	10041	1724	1757	13522	87		1252	1.38	0.21	0.24	1.62	1.83		1542	240	270	2052	
2026	10107	1735	1769	13610	88		1340	1.38	0.22	0.24	1.63	1.84		1552	241	272	2065	
2027	10172	1746	1780	13699	88		1429	1.39	0.22	0.24	1.64	1.85		1562	243	273	2078	
2028	10238	1758	1792	13788	89		1518	1.40	0.22	0.25	1.65	1.87		1572	244	275	2092	
2029	10305	1769	1803	13877	90		1607	1.41	0.22	0.25	1.66	1.88		1583	246	277	2105	
2030	10372	1781	1815	13968	90		1698	1.42	0.22	0.25	1.67	1.89		1593	248	279	2119	
2031	10439	1792	1827	14058	91		1788	1.43	0.22	0.25	1.68	1.90		1603	249	281	2133	
2032	10507	1804	1839	14150	91		1880	1.44	0.22	0.25	1.69	1.92		1614	251	282	2147	
2033	10575	1815	1851	14242	92		1972	1.45	0.23	0.25	1.70	1.93		1624	252	284	2161	
2034	10644	1827	1863	14334	93		2064	1.46	0.23	0.26	1.71	1.94		1635	254	286	2175	
2035	10713	1839	1875	14427	93		2157	1.47	0.23	0.26	1.72	1.95		1645	256	288	2189	
2036	10783	1851	1887	14521	94		2251	1.48	0.23	0.26	1.74	1.97		1656	257	290	2203	
2037	10853	1863	1899	14616	94		2346	1.49	0.23	0.26	1.75	1.98		1667	259	292	2217	
2038	10924	1875	1912	14711	95		2441	1.50	0.23	0.26	1.76	1.99		1678	261	294	2232	
2039	10995	1887	1924	14806	96		2536	1.51	0.23	0.26	1.77	2.00		1689	262	296	2246	
2040	11066	1900	1937	14902	96		2632	1.52	0.24	0.27	1.78	2.02		1699	264	297	2261	
2041	11138	1912	1949	14999	97		2729	1.53	0.24	0.27	1.79	2.03		1711	266	299	2276	
2042	11210	1924	1962	15097	97		2827	1.54	0.24	0.27	1.80	2.04		1722	268	301	2290	
2043	11283	1937	1975	15195	98		2925	1.55	0.24	0.27	1.82	2.06		1733	269	303	2305	
2044	11357	1950	1987	15294	99		3024	1.56	0.24	0.27	1.83	2.07		1744	271	305	2320	
2045	11430	1962	2000	15393	99		3123	1.57	0.24	0.27	1.84	2.08		1755	273	307	2335	
2046	11505	1975	2013	15493	100		3223	1.58	0.24	0.28	1.85	2.10		1767	275	309	2351	
2047	11580	1988	2026	15594	101		3324	1.59	0.25	0.28	1.86	2.11		1778	276	311	2366	
2048	11655	2001	2040	15695	101		3425	1.60	0.25	0.28	1.88	2.12		1790	278	313	2381	
2049	11731	2014	2053	15797	102		3527	1.61	0.25	0.28	1.89	2.14		1802	280	315	2397	
2050	11807	2027	2066	15900	103		3630	1.62	0.25	0.28	1.90	2.15		1813	282	317	2412	

RUNOFF AND EVAPORATION

Drainage Basin Area: 76.8 acres

Reservoir Surface Area:

Full (El 1386")	45	acres
1/2 Full (Active Pool) (El 1368")	32	acres

Net Land Drainage Area:

Full (El 1386")	31.8	acres
1/2 Full (Active Pool) (El 1368")	44.8	acres

Runoff Coefficient =: 0.4 Grassland per Gupta - Hydrology

Month	Precipitation		Surface Inflow			Days/Mo.	Daily Runoff - Evap		
	Normal Year (inches)	1:100 Year (inches)	Normal Year (AF)	1:100 Year (AF)	Evaporation (inches) (AF)		Normal Year (AF/Day)	Wet Year (AF/Day)	
January	6.22	9.28	25.9	38.6	1.3	3.5	31	0.723	1.133
February	5.66	10.92	23.5	45.4	1.83	4.9	28	0.667	1.448
March	5.40	11.39	22.5	47.4	3.46	9.2	31	0.427	1.231
April	2.74	5.29	11.4	22.0	5.25	14.0	30	-0.087	0.267
May	1.33	0.65	5.5	2.7	7.94	21.2	31	-0.505	-0.596
June	0.30	0.01	1.2	0.0	10.23	27.3	30	-0.868	-0.908
July	0.03	0.00	0.1	0.0	12.23	32.6	31	-1.048	-1.052
August	0.07	0.03	0.3	0.1	11.72	31.3	31	-0.999	-1.004
September	0.42	2.31	1.7	9.6	8.71	23.2	30	-0.716	-0.454
October	1.72	5.41	7.2	22.5	5.52	14.7	31	-0.244	0.251
November	3.56	9.65	14.8	40.1	2.23	5.9	30	0.295	1.140
December	5.29	4.86	22.0	20.2	1.19	3.2	31	0.608	0.550
TOTAL	32.74	59.80	136.2	248.8	71.61	191.0			

Notes:

1. Drainage basin area for direct runoff assumed to be 44.8 acres (based on 1/2 full reservoir).
2. Evaporation area based on average pool surface area of 32 acres (based on 1/2 full reservoir).
3. Evaporation based on Pan Evaporation Rate for New Melones Dam HQ from www.wrcc.dri.edu/htmlfiles/westevap.final.html

IRRIGATION AREA DEMANDS

		Number of Days		Ramp Up Regime		Ramp Down Regime	
Normal Year Irrigation Start Date:	15-Apr	200		Week 1	25%	Week 3	100%
Normal Year Irrigation End Date:	1-Nov			Week 2	50%	Week 2	50%
Wet Year Irrigation Start Date:	15-May	170		Week 3	100%	Week 1	25%
Wet Year Irrigation End Date:	1-Nov						
Projected Irrigation Demand (Normal Year)	3.80	AF/Ac					
Calculated Irrigation Demand (Wet Year)	3.23	AF/Ac					

Irrigation demands during wet years are reduced due to a shorter irrigation season. However, it is assumed that irrigation systems, when they are on, will flow at the same rate and will be at the same frequency they would on a "normal" year. However, irrigation will start later and/or possibly end earlier. Generally speaking, the start late situation is more troublesome than the end early.

DEMANDS											
UPPER ZONE		2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Turnout	Owner Name						AF				
4	LARSEN	125	51	34	67	66	26	27	60	53	70
5	McRAE	5	7	19	17	24	5	9	25	16	19
6	FRASER	24	96	121	127	92	100	88	103	93	107
7	WEST	187	156	183	221	171	151	90	78	26	50
7A	McRAE	44	59	69	67	73	60	59	74	69	93
7B	McRAE	10	9	1	0	0	0	0	0	0	0
7C	VUYOVICH	19	18	0	0	0	0	0	0	0	0
8A	APPLEBEE	4	0	12	12	11	8	11			
8H	HOAG	2	0	0	0	0	0	0			
8C	CASLER	0	3	8	10	3	0	0			
8N	NELSON	5	7	11	11	13	7	10			
8K(new)	KASLIN	82	18	22	0	0	0	0			
8K(old)	KASLIN	19	84	102	97	77	58	74			
9B	PARSONS	17	9	13	19	0	0	0	0	0	0
Subtotal (Upper Zone)		542	519	595	648	529	416	369	414	331	431
Upper Zone Average AF/Acre		3.89	3.80	4.50	5.10	4.20	3.30	3.46	3.88	3.10	4.04
10-Year Average AF/Acre		3.9									
"Normal Year" Average AF/Acre		4.3									

DEMANDS											
LOWER ZONE		2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Turnout	Owner Name					AF					
10A-JSD	JAMESTOWN	0	0	19	52	79	35	35	36	23	36
	NOT USED	0	0	0	0	0	0	0	0	0	0
TUD-QTF1	QUARTZ TREES&RIM & FOGGER	7	5	4	5	2	8	4	0	0	0
10	QUARTZ SPRAY - OLD	2	1	0	39	0	20	17	23	20	6
11	KILE	9	9	14	13	13	11	11	14	10	12
11A	KILE	23	19	25	14	14	18	17	0	0	0
12	TIERNEY	16	7	29	17	16	14	12	23	19	34
13	GORNE	19	12	16	23	22	17	28	0	3	27
14	STONE	3	16	90	36	29	38	31	32	34	19
15	TUD EGAN	0	1	0	5	14	55	50	60	44	46
16B	CHICKEN RANCH	85	52	115	72	66	58	56	71	53	78
17	ROSASCO	478	445	651	630	548	448	521	617	520	558
18	GARDELLA	565	528	698	737	363	804	659	725	618	659
19	GARDELLA 92 AC										
Subtotal (Lower Zone)		1,207	1,095	1,660	1,642	1,167	1,525	1,439	1,601	1,344	1,475
Lower Zone Average AF/Acre		3.31	3.04	3.60	3.50	3.17	4.32	4.09	4.65	3.90	4.24
10-Year Average AF/Acre		3.78									
"Normal Year" Average AF/Acre		3.98									
TOTAL AF Disposed		1,749	1,614	2,254	2,289	1,696	1,941	1,809	2,015	1,675	1,906
TOTAL Weight Average AF/Acre		3.47	3.25	3.80	3.84	3.44	4.06	3.95	4.47	3.71	4.19
"Normal Year" Weighted Average AF/Acre		3.81									

Current Normal Year Average Irrigation Demand		Wet Year Average Irrigation Demand	
Per Individual User		Per C8	
Average (2011)		Per C8	
Land Area x Avg AF/Ac	Per C7	Per C8	Per C8
72	65	55	55
12	7	6	6
103	89	76	76
154	151	129	129
67	61	52	52
10	11	10	10
18	16	13	13
9	11	10	10
1	2	2	2
4	3	3	3
8	9	7	7
67	79	68	68
15	19	16	16
14	5	4	4
Difference		449	79
554	528	25	25

Wet Years		Wet Year Average Irrigation Demand	
Current Normal Year Average Irrigation Demand		Wet Year Average Irrigation Demand	
Per Individual User		Per C8	
Average	(2011)	Per C8	Per C8
Land Area x Avg AF/Ac	Per C7	Per C8	Per C8
0	0	0	0
0	0	0	0
68	67	57	57
27	44	37	37
2	5	5	5
19	15	13	13
12	8	7	7
19	12	11	11
10	9	8	8
51	85	72	72
66	49	42	42
609	662	563	563
1116	988	840	840
80	80	68	68
Difference		1654	372
2078	2026	52	52

DAILY WATER BALANCE

Carryover Storage on Oct. 15th of Preceding Year	0 AF	Assumed Winter Application Rate (Nov-March)	1.5 AF/Ac	Reservoir Capacity	1666 AF
Normal Year		1:100 Wet Year			
Max Storage Needed	975 AF	Max Storage Needed	1387 AF		
Date Max Level Occurs		Date Max Level Occurs			
Storage Surplus (Deficit)	691 AF	Storage Surplus (Deficit)	279 AF		
Storage OK?	OK	Storage OK?	OK		
Volume Remaining Storage at End of Season (Shortage of Water)	(582) AF	Volume Remaining Storage at End of Season (Shortage of Water)	84		
Critical Water Shortage	(591) AF	Critical Water Shortage	0 AF		
Land Irrigated at Start of Season	672	Land Irrigated at Start of Season	672		
<u>DRY YEAR FALLOWED LAND</u>					
Additional Land to Irrigate (Fallow)	(156) Ac	<u>ADDITIONAL LAND NEEDED</u>			
		ADDITIONAL LAND NEEDED	26 Ac		

This is the area of land that should have not been irrigated during the irrigation season. In reality, we will start the year trying to irrigate and as time passes we will take application areas off-line, reduce the pressure on the Floway Pump, and possibly implement scheduling.

This is the additional area of land that would have needed to be under active irrigation at the beginning of the season in order to empty the reservoir by the official end of irrigation season. Otherwise, water that remains in the reservoir at the end of the irrigation season will need to be disposed of via winter irrigation between November - March.

DAILY WATER BALANCE

Normal Year							1:100 Wet Year						
User Inflows	Runoff-Evap	Upper Zone	Lower Zone	Quartz Storage	Staff Gauge	User Inflows	Runoff-Evap	Upper Zone	Lower Zone	Quartz Storage	Staff Gauge		
1-Jan	5.47	0.723	0.000	0.000	324.581	15.300	6.63	1.133	0.000	0.000	399.427	18.100	
2-Jan	5.47	0.723	0.000	0.000	330.772	15.500	6.63	1.133	0.000	0.000	407.191	18.400	
3-Jan	5.47	0.723	0.000	0.000	336.963	15.800	6.63	1.133	0.000	0.000	414.955	18.700	
4-Jan	5.47	0.723	0.000	0.000	343.154	16.000	6.63	1.133	0.000	0.000	422.719	19.000	
5-Jan	5.47	0.723	0.000	0.000	349.345	16.300	6.63	1.133	0.000	0.000	430.483	19.200	
6-Jan	5.47	0.723	0.000	0.000	355.536	16.500	6.63	1.133	0.000	0.000	438.247	19.500	
7-Jan	5.47	0.723	0.000	0.000	361.728	16.700	6.63	1.133	0.000	0.000	446.011	19.800	
8-Jan	5.47	0.723	0.000	0.000	367.919	17.000	6.63	1.133	0.000	0.000	453.774	20.100	
9-Jan	5.47	0.723	0.000	0.000	374.110	17.200	6.63	1.133	0.000	0.000	461.538	20.300	
10-Jan	5.47	0.723	0.000	0.000	380.301	17.400	6.63	1.133	0.000	0.000	469.302	20.600	
11-Jan	5.47	0.723	0.000	0.000	386.492	17.700	6.63	1.133	0.000	0.000	477.066	20.900	
12-Jan	5.47	0.723	0.000	0.000	392.683	17.900	6.63	1.133	0.000	0.000	484.830	21.100	
13-Jan	5.47	0.723	0.000	0.000	398.874	18.100	6.63	1.133	0.000	0.000	492.594	21.400	
14-Jan	5.47	0.723	0.000	0.000	405.065	18.300	6.63	1.133	0.000	0.000	500.358	21.700	
15-Jan	5.47	0.723	0.000	0.000	411.256	18.600	6.63	1.133	0.000	0.000	508.121	21.900	
16-Jan	5.47	0.723	0.000	0.000	417.447	18.800	6.63	1.133	0.000	0.000	515.885	22.200	
17-Jan	5.47	0.723	0.000	0.000	423.638	19.000	6.63	1.133	0.000	0.000	523.649	22.500	
18-Jan	5.47	0.723	0.000	0.000	429.829	19.200	6.63	1.133	0.000	0.000	531.413	22.700	
19-Jan	5.47	0.723	0.000	0.000	436.021	19.400	6.63	1.133	0.000	0.000	539.177	23.000	
20-Jan	5.47	0.723	0.000	0.000	442.212	19.700	6.63	1.133	0.000	0.000	546.941	23.200	
21-Jan	5.47	0.723	0.000	0.000	448.403	19.900	6.63	1.133	0.000	0.000	554.705	23.500	
22-Jan	5.47	0.723	0.000	0.000	454.594	20.100	6.63	1.133	0.000	0.000	562.468	23.700	
23-Jan	5.47	0.723	0.000	0.000	460.785	20.300	6.63	1.133	0.000	0.000	570.232	24.000	
24-Jan	5.47	0.723	0.000	0.000	466.976	20.500	6.63	1.133	0.000	0.000	577.996	24.200	
25-Jan	5.47	0.723	0.000	0.000	473.167	20.700	6.63	1.133	0.000	0.000	585.760	24.500	
26-Jan	5.47	0.723	0.000	0.000	479.358	21.000	6.63	1.133	0.000	0.000	593.524	24.700	
27-Jan	5.47	0.723	0.000	0.000	485.549	21.200	6.63	1.133	0.000	0.000	601.288	25.000	
28-Jan	5.47	0.723	0.000	0.000	491.740	21.400	6.63	1.133	0.000	0.000	609.052	25.200	
29-Jan	5.47	0.723	0.000	0.000	497.931	21.600	6.63	1.133	0.000	0.000	616.816	25.500	
30-Jan	5.47	0.723	0.000	0.000	504.122	21.800	6.63	1.133	0.000	0.000	624.579	25.700	
31-Jan	5.47	0.723	0.000	0.000	510.313	22.000	6.63	1.133	0.000	0.000	632.343	26.000	
1-Feb	5.51	0.667	0.000	0.000	516.491	22.200	6.68	1.448	0.000	0.000	640.473	26.200	
2-Feb	5.51	0.667	0.000	0.000	522.669	22.400	6.68	1.448	0.000	0.000	648.603	26.400	
3-Feb	5.51	0.667	0.000	0.000	528.846	22.600	6.68	1.448	0.000	0.000	656.733	26.700	
4-Feb	5.51	0.667	0.000	0.000	535.024	22.800	6.68	1.448	0.000	0.000	664.863	26.900	
5-Feb	5.51	0.667	0.000	0.000	541.201	23.000	6.68	1.448	0.000	0.000	672.992	27.200	
6-Feb	5.51	0.667	0.000	0.000	547.379	23.200	6.68	1.448	0.000	0.000	681.122	27.400	
7-Feb	5.51	0.667	0.000	0.000	553.556	23.400	6.68	1.448	0.000	0.000	689.252	27.700	
8-Feb	5.51	0.667	0.000	0.000	559.734	23.600	6.68	1.448	0.000	0.000	697.382	27.900	
9-Feb	5.51	0.667	0.000	0.000	565.911	23.800	6.68	1.448	0.000	0.000	705.512	28.200	
10-Feb	5.51	0.667	0.000	0.000	572.089	24.000	6.68	1.448	0.000	0.000	713.642	28.400	
11-Feb	5.51	0.667	0.000	0.000	578.266	24.200	6.68	1.448	0.000	0.000	721.771	28.600	
12-Feb	5.51	0.667	0.000	0.000	584.444	24.400	6.68	1.448	0.000	0.000	729.901	28.900	
13-Feb	5.51	0.667	0.000	0.000	590.621	24.600	6.68	1.448	0.000	0.000	738.031	29.100	
14-Feb	5.51	0.667	0.000	0.000	596.799	24.800	6.68	1.448	0.000	0.000	746.161	29.300	
15-Feb	5.51	0.667	0.000	0.000	602.976	25.000	6.68	1.448	0.000	0.000	754.291	29.600	
16-Feb	5.51	0.667	0.000	0.000	609.154	25.200	6.68	1.448	0.000	0.000	762.421	29.800	
17-Feb	5.51	0.667	0.000	0.000	615.331	25.400	6.68	1.448	0.000	0.000	770.550	30.000	
18-Feb	5.51	0.667	0.000	0.000	621.509	25.600	6.68	1.448	0.000	0.000	778.680	30.300	
19-Feb	5.51	0.667	0.000	0.000	627.686	25.800	6.68	1.448	0.000	0.000	786.810	30.500	
20-Feb	5.51	0.667	0.000	0.000	633.864	26.000	6.68	1.448	0.000	0.000	794.940	30.700	
21-Feb	5.51	0.667	0.000	0.000	640.041	26.200	6.68	1.448	0.000	0.000	803.070	31.000	
22-Feb	5.51	0.667	0.000	0.000	646.219	26.400	6.68	1.448	0.000	0.000	811.200	31.200	
23-Feb	5.51	0.667	0.000	0.000	652.397	26.600	6.68	1.448	0.000	0.000	819.329	31.400	
24-Feb	5.51	0.667	0.000	0.000	658.574	26.700	6.68	1.448	0.000	0.000	827.459	31.600	
25-Feb	5.51	0.667	0.000	0.000	664.752	26.900	6.68	1.448	0.000	0.000	835.589	31.900	
26-Feb	5.51	0.667	0.000	0.000	670.929	27.100	6.68	1.448	0.000	0.000	843.719	32.100	
27-Feb	5.51	0.667	0.000	0.000	677.107	27.300	6.68	1.448	0.000	0.000	851.849	32.300	
28-Feb	5.51	0.667	0.000	0.000	683.284	27.500	6.68	1.448	0.000	0.000	859.979	32.500	
29-Feb	5.51	0.667	0.000	0.000	689.462	27.700	6.68	1.448	0.000	0.000	868.108	32.700	
1-Mar	5.69	0.427	0.000	0.000	695.576	27.900	6.70	1.231	0.000	0.000	876.036	33.000	
2-Mar	5.69	0.427	0.000	0.000	701.691	28.100	6.70	1.231	0.000	0.000	883.963	33.200	
3-Mar	5.69	0.427	0.000	0.000	707.806	28.200	6.70	1.231	0.000	0.000	891.891	33.400	
4-Mar	5.69	0.427	0.000	0.000	713.920	28.400	6.70	1.231	0.000	0.000	899.818	33.600	
5-Mar	5.69	0.427	0.000	0.000	720.035	28.600	6.70	1.231	0.000	0.000	907.746	33.800	
6-Mar	5.69	0.427	0.000	0.000	726.150	28.800	6.70	1.231	0.000	0.000	915.673	34.000	
7-Mar	5.69	0.427	0.000	0.000	732.264	28.900	6.70	1.231	0.000	0.000	923.601	34.200	
8-Mar	5.69	0.427	0.000	0.000	738.379	29.100	6.70	1.231	0.000	0.000	931.528	34.400	
9-Mar	5.69	0.427	0.000	0.000	744.494	29.300	6.70	1.231	0.000	0.000	939.455	34.600	
10-Mar	5.69	0.427	0.000	0.000	750.609	29.500	6.70	1.231	0.000	0.000	947.383	34.800	
11-Mar	5												

DAILY WATER BALANCE

12-Mar	5.69	0.427	0.000	0.000	762.838	29.800	6.70	1.231	0.000	0.000	963.238	35.300
13-Mar	5.69	0.427	0.000	0.000	768.953	30.000	6.70	1.231	0.000	0.000	971.165	35.500
14-Mar	5.69	0.427	0.000	0.000	775.067	30.200	6.70	1.231	0.000	0.000	979.093	35.700
15-Mar	5.69	0.427	0.000	0.000	781.182	30.300	6.70	1.231	0.000	0.000	987.020	35.900
16-Mar	5.69	0.427	0.000	0.000	787.297	30.500	6.70	1.231	0.000	0.000	994.948	36.100
17-Mar	5.69	0.427	0.000	0.000	793.411	30.700	6.70	1.231	0.000	0.000	1002.875	36.300
18-Mar	5.69	0.427	0.000	0.000	799.526	30.900	6.70	1.231	0.000	0.000	1010.802	36.500
19-Mar	5.69	0.427	0.000	0.000	805.641	31.000	6.70	1.231	0.000	0.000	1018.730	36.700
20-Mar	5.69	0.427	0.000	0.000	811.755	31.200	6.70	1.231	0.000	0.000	1026.657	36.900
21-Mar	5.69	0.427	0.000	0.000	817.870	31.400	6.70	1.231	0.000	0.000	1034.585	37.100
22-Mar	5.69	0.427	0.000	0.000	823.985	31.500	6.70	1.231	0.000	0.000	1042.512	37.300
23-Mar	5.69	0.427	0.000	0.000	830.100	31.700	6.70	1.231	0.000	0.000	1050.440	37.500
24-Mar	5.69	0.427	0.000	0.000	836.214	31.900	6.70	1.231	0.000	0.000	1058.367	37.700
25-Mar	5.69	0.427	0.000	0.000	842.329	32.100	6.70	1.231	0.000	0.000	1066.295	37.900
26-Mar	5.69	0.427	0.000	0.000	848.444	32.200	6.70	1.231	0.000	0.000	1074.222	38.100
27-Mar	5.69	0.427	0.000	0.000	854.558	32.400	6.70	1.231	0.000	0.000	1082.149	38.300
28-Mar	5.69	0.427	0.000	0.000	860.673	32.500	6.70	1.231	0.000	0.000	1090.077	38.400
29-Mar	5.69	0.427	0.000	0.000	866.788	32.700	6.70	1.231	0.000	0.000	1098.004	38.600
30-Mar	5.69	0.427	0.000	0.000	872.902	32.900	6.70	1.231	0.000	0.000	1105.932	38.800
31-Mar	5.69	0.427	0.000	0.000	879.017	33.000	6.70	1.231	0.000	0.000	1113.859	39.000
1-Apr	5.76	-0.087	0.000	0.000	884.689	33.200	6.29	0.267	0.000	0.000	1120.414	39.200
2-Apr	5.76	-0.087	0.000	0.000	890.361	33.300	6.29	0.267	0.000	0.000	1126.969	39.300
3-Apr	5.76	-0.087	0.000	0.000	896.033	33.500	6.29	0.267	0.000	0.000	1133.523	39.500
4-Apr	5.76	-0.087	0.000	0.000	901.705	33.700	6.29	0.267	0.000	0.000	1140.078	39.700
5-Apr	5.76	-0.087	0.000	0.000	907.377	33.800	6.29	0.267	0.000	0.000	1146.633	39.800
6-Apr	5.76	-0.087	0.000	0.000	913.049	34.000	6.29	0.267	0.000	0.000	1153.187	40.000
7-Apr	5.76	-0.087	0.000	0.000	918.722	34.100	6.29	0.267	0.000	0.000	1159.742	40.100
8-Apr	5.76	-0.087	0.000	0.000	924.394	34.300	6.29	0.267	0.000	0.000	1166.297	40.300
9-Apr	5.76	-0.087	0.000	0.000	930.066	34.400	6.29	0.267	0.000	0.000	1172.851	40.400
10-Apr	5.76	-0.087	0.000	0.000	935.738	34.500	6.29	0.267	0.000	0.000	1179.406	40.600
11-Apr	5.76	-0.087	0.000	0.000	941.410	34.700	6.29	0.267	0.000	0.000	1185.961	40.800
12-Apr	5.76	-0.087	0.000	0.000	947.082	34.800	6.29	0.267	0.000	0.000	1192.516	40.900
13-Apr	5.76	-0.087	0.000	0.000	952.754	35.000	6.29	0.267	0.000	0.000	1199.070	41.100
14-Apr	5.76	-0.087	0.000	0.000	958.426	35.100	6.29	0.267	0.000	0.000	1205.625	41.200
15-Apr	5.76	-0.087	0.724	2.598	960.776	35.200	6.29	0.267	0.000	0.000	1212.180	41.400
16-Apr	5.76	-0.087	0.724	2.598	963.126	35.300	6.29	0.267	0.000	0.000	1218.734	41.500
17-Apr	5.76	-0.087	0.724	2.598	965.476	35.300	6.29	0.267	0.000	0.000	1225.289	41.700
18-Apr	5.76	-0.087	0.724	2.598	967.826	35.400	6.29	0.267	0.000	0.000	1231.844	41.800
19-Apr	5.76	-0.087	0.724	2.598	970.176	35.400	6.29	0.267	0.000	0.000	1238.398	42.000
20-Apr	5.76	-0.087	0.724	2.598	972.526	35.500	6.29	0.267	0.000	0.000	1244.953	42.100
21-Apr	5.76	-0.087	0.724	2.598	974.876	35.600	6.29	0.267	0.000	0.000	1251.508	42.300
22-Apr	5.76	-0.087	1.448	5.196	973.904	35.500	6.29	0.267	0.000	0.000	1258.062	42.400
23-Apr	5.76	-0.087	1.448	5.196	972.932	35.500	6.29	0.267	0.000	0.000	1264.617	42.600
24-Apr	5.76	-0.087	1.448	5.196	971.960	35.500	6.29	0.267	0.000	0.000	1271.172	42.700
25-Apr	5.76	-0.087	1.448	5.196	970.988	35.500	6.29	0.267	0.000	0.000	1277.726	42.900
26-Apr	5.76	-0.087	1.448	5.196	970.017	35.400	6.29	0.267	0.000	0.000	1284.281	43.000
27-Apr	5.76	-0.087	1.448	5.196	969.045	35.400	6.29	0.267	0.000	0.000	1290.836	43.200
28-Apr	5.76	-0.087	1.448	5.196	968.073	35.400	6.29	0.267	0.000	0.000	1297.391	43.300
29-Apr	5.76	-0.087	2.895	10.393	960.456	35.200	6.29	0.267	0.000	0.000	1303.945	43.500
30-Apr	5.76	-0.087	2.895	10.393	952.840	35.000	6.29	0.267	0.000	0.000	1310.500	43.600
1-May	5.11	-0.505	2.895	10.393	944.159	34.800	5.36	-0.596	0.000	0.000	1315.264	43.700
2-May	5.11	-0.505	2.895	10.393	935.478	34.500	5.36	-0.596	0.000	0.000	1320.028	43.800
3-May	5.11	-0.505	2.895	10.393	926.797	34.300	5.36	-0.596	0.000	0.000	1324.793	44.000
4-May	5.11	-0.505	2.895	10.393	918.116	34.100	5.36	-0.596	0.000	0.000	1329.557	44.100
5-May	5.11	-0.505	2.895	10.393	909.435	33.900	5.36	-0.596	0.000	0.000	1334.321	44.200
6-May	5.11	-0.505	2.895	10.393	900.754	33.600	5.36	-0.596	0.000	0.000	1339.085	44.300
7-May	5.11	-0.505	2.895	10.393	892.073	33.400	5.36	-0.596	0.000	0.000	1343.850	44.400
8-May	5.11	-0.505	2.895	10.393	883.391	33.200	5.36	-0.596	0.000	0.000	1348.614	44.500
9-May	5.11	-0.505	2.895	10.393	874.710	32.900	5.36	-0.596	0.000	0.000	1353.378	44.600
10-May	5.11	-0.505	2.895	10.393	866.029	32.700	5.36	-0.596	0.000	0.000	1358.142	44.700
11-May	5.11	-0.505	2.895	10.393	857.348	32.500	5.36	-0.596	0.000	0.000	1362.907	44.800
12-May	5.11	-0.505	2.895	10.393	848.667	32.200	5.36	-0.596	0.000	0.000	1367.671	44.900
13-May	5.11	-0.505	2.895	10.393	839.986	32.000	5.36	-0.596	0.000	0.000	1372.435	45.000
14-May	5.11	-0.505	2.895	10.393	831.305	31.700	5.36	-0.596	0.000	0.000	1377.199	45.100
15-May	5.11	-0.505	2.895	10.393	822.624	31.500	5.36	-0.596	0.736	2.643	1378.584	45.100
16-May	5.11	-0.505	2.895	10.393	813.942	31.300	5.36	-0.596	0.736	2.643	1379.969	45.200
17-May	5.11	-0.505	2.895	10.393	805.261	31.000	5.36	-0.596	0.736	2.643	1381.355	45.200
18-May	5.11	-0.505	2.895	10.393	796.580	30.800	5.36	-0.596	0.736	2.643	1382.740	45.200
19-May	5.11	-0.505	2.895	10.393	787.899	30.500	5.36	-0.596	0.736	2.643	1384.125	45.300
20-May	5.11	-0.505	2.895	10.393	779.218	30.300	5.36	-0.596	0.736	2.643	1385.510	45.300
21-May	5.11	-0.505	2.895	10.393	770.537	30.000	5.36	-0.596	0.736	2.643	1386.895	45.300
22-May	5.11	-0.505	2.895	10.393	761.856	29.800	5.36	-0.596	1.473	5.286	1384.900	45.300
23-May	5.11	-0.505	2.895	10.393	753.175	29.500	5.36	-0.596	1.473	5.286	1382.906	45.200
24-May	5.11	-0.505	2.895	10.393	744.493	29.300	5.36	-0.596	1.473	5.286	1380.912	45.200
25-May	5.11	-0.505	2.895	10.393	735.812	29.000	5.36	-0.596	1.473	5.286	1378.918	45.200
26-May	5.11	-0.505	2.895	10.393	727.131	28.800	5.36	-0.596	1.473	5.286	1376.924	45.100
27-May	5.11	-0.505	2.895	10.393	718.450	28.500	5.36	-0.596	1.473	5.286	1374.930	45.100
28-May	5.11	-0.505	2.895	10.393	709.769	28.300	5.36	-0.596	1.473	5.286	1372.935	45.000
29-May	5.11	-0.505	2.895	10.393	701.088	28.000	5.36	-0.596	2.945	10.572	1364.183	44.800
30-May	5.11	-0.505	2.895	10.393	692.407	27.800	5.36	-0.596	2.945	10.572	1355.430	44.600
31-May	5.11</											

DAILY WATER BALANCE

19-Jun	5.12	-0.868	2.895	10.393	512.004	22.100	5.18	-0.908	2.945	10.572	1170.947	40.400
20-Jun	5.12	-0.868	2.895	10.393	502.966	21.800	5.18	-0.908	2.945	10.572	1161.698	40.200
21-Jun	5.12	-0.868	2.895	10.393	493.928	21.500	5.18	-0.908	2.945	10.572	1152.449	40.000
22-Jun	5.12	-0.868	2.895	10.393	484.890	21.100	5.18	-0.908	2.945	10.572	1143.200	39.700
23-Jun	5.12	-0.868	2.895	10.393	475.852	20.800	5.18	-0.908	2.945	10.572	1133.951	39.500
24-Jun	5.12	-0.868	2.895	10.393	466.814	20.500	5.18	-0.908	2.945	10.572	1124.702	39.300
25-Jun	5.12	-0.868	2.895	10.393	457.776	20.200	5.18	-0.908	2.945	10.572	1115.453	39.100
26-Jun	5.12	-0.868	2.895	10.393	448.738	19.900	5.18	-0.908	2.945	10.572	1106.204	38.800
27-Jun	5.12	-0.868	2.895	10.393	439.700	19.600	5.18	-0.908	2.945	10.572	1096.955	38.600
28-Jun	5.12	-0.868	2.895	10.393	430.662	19.300	5.18	-0.908	2.945	10.572	1087.706	38.400
29-Jun	5.12	-0.868	2.895	10.393	421.624	18.900	5.18	-0.908	2.945	10.572	1078.457	38.200
30-Jun	5.12	-0.868	2.895	10.393	412.586	18.600	5.18	-0.908	2.945	10.572	1069.208	37.900
1-Jul	5.13	-1.048	2.895	10.393	403.383	18.300	5.14	-1.052	2.945	10.572	1059.778	37.700
2-Jul	5.13	-1.048	2.895	10.393	394.180	18.000	5.14	-1.052	2.945	10.572	1050.347	37.500
3-Jul	5.13	-1.048	2.895	10.393	384.977	17.600	5.14	-1.052	2.945	10.572	1040.917	37.200
4-Jul	5.13	-1.048	2.895	10.393	375.774	17.300	5.14	-1.052	2.945	10.572	1031.487	37.000
5-Jul	5.13	-1.048	2.895	10.393	366.571	16.900	5.14	-1.052	2.945	10.572	1022.056	36.800
6-Jul	5.13	-1.048	2.895	10.393	357.368	16.600	5.14	-1.052	2.945	10.572	1012.626	36.500
7-Jul	5.13	-1.048	2.895	10.393	348.164	16.200	5.14	-1.052	2.945	10.572	1003.196	36.300
8-Jul	5.13	-1.048	2.895	10.393	338.961	15.900	5.14	-1.052	2.945	10.572	993.765	36.000
9-Jul	5.13	-1.048	2.895	10.393	329.758	15.500	5.14	-1.052	2.945	10.572	984.335	35.800
10-Jul	5.13	-1.048	2.895	10.393	320.555	15.100	5.14	-1.052	2.945	10.572	974.905	35.600
11-Jul	5.13	-1.048	2.895	10.393	311.352	14.800	5.14	-1.052	2.945	10.572	965.474	35.300
12-Jul	5.13	-1.048	2.895	10.393	302.149	14.400	5.14	-1.052	2.945	10.572	956.044	35.100
13-Jul	5.13	-1.048	2.895	10.393	292.945	14.000	5.14	-1.052	2.945	10.572	946.614	34.800
14-Jul	5.13	-1.048	2.895	10.393	283.742	13.700	5.14	-1.052	2.945	10.572	937.184	34.600
15-Jul	5.13	-1.048	2.895	10.393	274.539	13.300	5.14	-1.052	2.945	10.572	927.753	34.300
16-Jul	5.13	-1.048	2.895	10.393	265.336	12.900	5.14	-1.052	2.945	10.572	918.323	34.100
17-Jul	5.13	-1.048	2.895	10.393	256.133	12.500	5.14	-1.052	2.945	10.572	908.893	33.800
18-Jul	5.13	-1.048	2.895	10.393	246.930	12.100	5.14	-1.052	2.945	10.572	899.462	33.600
19-Jul	5.13	-1.048	2.895	10.393	237.726	11.700	5.14	-1.052	2.945	10.572	890.032	33.300
20-Jul	5.13	-1.048	2.895	10.393	228.523	11.300	5.14	-1.052	2.945	10.572	880.602	33.100
21-Jul	5.13	-1.048	2.895	10.393	219.320	10.900	5.14	-1.052	2.945	10.572	871.171	32.800
22-Jul	5.13	-1.048	2.895	10.393	210.117	10.500	5.14	-1.052	2.945	10.572	861.741	32.600
23-Jul	5.13	-1.048	2.895	10.393	200.914	10.100	5.14	-1.052	2.945	10.572	852.311	32.300
24-Jul	5.13	-1.048	2.895	10.393	191.711	9.600	5.14	-1.052	2.945	10.572	842.880	32.100
25-Jul	5.13	-1.048	2.895	10.393	182.508	9.200	5.14	-1.052	2.945	10.572	833.450	31.800
26-Jul	5.13	-1.048	2.895	10.393	173.304	8.800	5.14	-1.052	2.945	10.572	824.020	31.500
27-Jul	5.13	-1.048	2.895	10.393	164.101	8.300	5.14	-1.052	2.945	10.572	814.590	31.300
28-Jul	5.13	-1.048	2.895	10.393	154.898	7.900	5.14	-1.052	2.945	10.572	805.159	31.000
29-Jul	5.13	-1.048	2.895	10.393	145.695	7.400	5.14	-1.052	2.945	10.572	795.729	30.800
30-Jul	5.13	-1.048	2.895	10.393	136.492	6.900	5.14	-1.052	2.945	10.572	786.299	30.500
31-Jul	5.13	-1.048	2.895	10.393	127.289	5.500	5.14	-1.052	2.945	10.572	776.868	30.200
1-Aug	5.18	-0.999	2.895	10.393	118.177	5.100	5.19	-1.004	2.945	10.572	767.536	30.000
2-Aug	5.18	-0.999	2.895	10.393	109.066	4.500	5.19	-1.004	2.945	10.572	758.204	29.700
3-Aug	5.18	-0.999	2.895	10.393	99.955	4.100	5.19	-1.004	2.945	10.572	748.871	29.400
4-Aug	5.18	-0.999	2.895	10.393	90.843	4.100	5.19	-1.004	2.945	10.572	739.539	29.200
5-Aug	5.18	-0.999	2.895	10.393	81.732	4.000	5.19	-1.004	2.945	10.572	730.207	28.900
6-Aug	5.18	-0.999	2.895	10.393	72.621	3.400	5.19	-1.004	2.945	10.572	720.874	28.600
7-Aug	5.18	-0.999	2.895	10.393	63.510	2.900	5.19	-1.004	2.945	10.572	711.542	28.300
8-Aug	5.18	-0.999	2.895	10.393	54.398	2.300	5.19	-1.004	2.945	10.572	702.210	28.100
9-Aug	5.18	-0.999	2.895	10.393	45.287	1.700	5.19	-1.004	2.945	10.572	692.877	27.800
10-Aug	5.18	-0.999	2.895	10.393	36.176	1.000	5.19	-1.004	2.945	10.572	683.545	27.500
11-Aug	5.18	-0.999	2.895	10.393	27.064	0.300	5.19	-1.004	2.945	10.572	674.213	27.200
12-Aug	5.18	-0.999	2.895	10.393	17.953	-0.400	5.19	-1.004	2.945	10.572	664.881	26.900
13-Aug	5.18	-0.999	2.895	10.393	8.842	-1.200	5.19	-1.004	2.945	10.572	655.548	26.700
14-Aug	5.18	-0.999	2.895	10.393	-0.270	#N/A	5.19	-1.004	2.945	10.572	646.216	26.400
15-Aug	5.18	-0.999	2.895	10.393	-9.381	#N/A	5.19	-1.004	2.945	10.572	636.884	26.100
16-Aug	5.18	-0.999	2.895	10.393	-18.492	#N/A	5.19	-1.004	2.945	10.572	627.551	25.800
17-Aug	5.18	-0.999	2.895	10.393	-27.603	#N/A	5.19	-1.004	2.945	10.572	618.219	25.500
18-Aug	5.18	-0.999	2.895	10.393	-36.715	#N/A	5.19	-1.004	2.945	10.572	608.887	25.200
19-Aug	5.18	-0.999	2.895	10.393	-45.826	#N/A	5.19	-1.004	2.945	10.572	599.554	24.900
20-Aug	5.18	-0.999	2.895	10.393	-54.937	#N/A	5.19	-1.004	2.945	10.572	590.222	24.600
21-Aug	5.18	-0.999	2.895	10.393	-64.049	#N/A	5.19	-1.004	2.945	10.572	580.890	24.300
22-Aug	5.18	-0.999	2.895	10.393	-73.160	#N/A	5.19	-1.004	2.945	10.572	571.557	24.000
23-Aug	5.18	-0.999	2.895	10.393	-82.271	#N/A	5.19	-1.004	2.945	10.572	562.225	23.700
24-Aug	5.18	-0.999	2.895	10.393	-91.383	#N/A	5.19	-1.004	2.945	10.572	552.893	23.400
25-Aug	5.18	-0.999	2.895	10.393	-100.494	#N/A	5.19	-1.004	2.945	10.572	543.560	23.100
26-Aug	5.18	-0.999	2.895	10.393	-109.605	#N/A	5.19	-1.004	2.945	10.572	534.228	22.800
27-Aug	5.18	-0.999	2.895	10.393	-118.716	#N/A	5.19	-1.004	2.945	10.572	524.896	22.500
28-Aug	5.18	-0.999	2.895	10.393	-127.828	#N/A	5.19	-1.004	2.945	10.572	515.563	22.200
29-Aug	5.18	-0.999	2.895	10.393	-136.939	#N/A	5.19	-1.004	2.945	10.572	506.231	21.900
30-Aug	5.18	-0.999	2.895	10.393	-146.050	#N/A	5.19	-1.004	2.945	10.572	496.899	21.600
31-Aug	5.18	-0.999	2.895	10.393	-155.162	#N/A	5.19	-1.004	2.945	10.572	487.566	21.200
1-Sep	4.83	-0.716	2.895	10.393	-164.333	#N/A	4.91	-0.454	2.945	10.572	478.509	20.900
2-Sep	4.83	-0.716	2.895	10.393	-173.505	#N/A	4.91	-0.454	2.945	10.572	469.452	20.600
3-Sep	4.83	-0.716	2.895	10.393	-182.677	#N/A	4.91	-0.454	2.945	10.572	460.394	20.300
4-Sep	4.83	-0.716	2.895	10.393	-191.849	#N/A	4.91	-0.454	2.945	10.572	451.337	20.000
5-Sep	4.83	-0.716	2.895	10.393	-201.021	#N/A	4.91	-0.454	2.945	10.572	442.279	19.700
6-Sep	4.83	-0.716	2.895	10.393	-210.193	#N/A	4.91	-0.454	2.945	10.572	433.222	19.300
7-Sep	4.83	-0.716	2.895	10.393	-219.365	#N/A	4.91	-0.454	2.9			

DAILY WATER BALANCE

26-Sep	4.83	-0.716	2.895	10.393	-393.630	#N/A	4.91	-0.454	2.945	10.572	252.073	12.300
27-Sep	4.83	-0.716	2.895	10.393	-402.802	#N/A	4.91	-0.454	2.945	10.572	243.016	12.000
28-Sep	4.83	-0.716	2.895	10.393	-411.974	#N/A	4.91	-0.454	2.945	10.572	233.959	11.500
29-Sep	4.83	-0.716	2.895	10.393	-421.146	#N/A	4.91	-0.454	2.945	10.572	224.901	11.100
30-Sep	4.83	-0.716	2.895	10.393	-430.318	#N/A	4.91	-0.454	2.945	10.572	215.844	10.700
1-Oct	4.88	-0.244	2.895	10.393	-438.970	#N/A	5.20	0.251	2.945	10.572	207.779	10.400
2-Oct	4.88	-0.244	2.895	10.393	-447.622	#N/A	5.20	0.251	2.945	10.572	199.715	10.000
3-Oct	4.88	-0.244	2.895	10.393	-456.274	#N/A	5.20	0.251	2.945	10.572	191.651	9.600
4-Oct	4.88	-0.244	2.895	10.393	-464.926	#N/A	5.20	0.251	2.945	10.572	183.586	9.200
5-Oct	4.88	-0.244	2.895	10.393	-473.579	#N/A	5.20	0.251	2.945	10.572	175.522	8.900
6-Oct	4.88	-0.244	2.895	10.393	-482.231	#N/A	5.20	0.251	2.945	10.572	167.457	8.500
7-Oct	4.88	-0.244	2.895	10.393	-490.883	#N/A	5.20	0.251	2.945	10.572	159.393	8.100
8-Oct	4.88	-0.244	2.895	10.393	-499.535	#N/A	5.20	0.251	2.945	10.572	151.328	7.700
9-Oct	4.88	-0.244	2.895	10.393	-508.188	#N/A	5.20	0.251	2.945	10.572	143.264	7.300
10-Oct	4.88	-0.244	2.895	10.393	-516.840	#N/A	5.20	0.251	2.945	10.572	135.200	6.900
11-Oct	4.88	-0.244	2.895	10.393	-525.492	#N/A	5.20	0.251	2.945	10.572	127.135	5.500
12-Oct	4.88	-0.244	2.895	10.393	-534.144	#N/A	5.20	0.251	2.945	10.572	119.071	5.100
13-Oct	4.88	-0.244	2.895	10.393	-542.796	#N/A	5.20	0.251	2.945	10.572	111.006	4.600
14-Oct	4.88	-0.244	2.895	10.393	-551.449	#N/A	5.20	0.251	2.945	10.572	102.942	4.200
15-Oct	4.88	-0.244	2.895	10.393	-560.101	#N/A	5.20	0.251	2.945	10.572	94.878	4.100
16-Oct	4.88	-0.244	2.895	10.393	-568.753	#N/A	5.20	0.251	2.945	10.572	86.813	4.100
17-Oct	4.88	-0.244	2.895	10.393	-577.405	#N/A	5.20	0.251	2.945	10.572	78.749	3.800
18-Oct	4.88	-0.244	1.448	5.196	-579.414	#N/A	5.20	0.251	1.473	5.286	77.443	3.700
19-Oct	4.88	-0.244	1.448	5.196	-581.422	#N/A	5.20	0.251	1.473	5.286	76.137	3.700
20-Oct	4.88	-0.244	1.448	5.196	-583.430	#N/A	5.20	0.251	1.473	5.286	74.831	3.600
21-Oct	4.88	-0.244	1.448	5.196	-585.438	#N/A	5.20	0.251	1.473	5.286	73.525	3.500
22-Oct	4.88	-0.244	1.448	5.196	-587.446	#N/A	5.20	0.251	1.473	5.286	72.219	3.400
23-Oct	4.88	-0.244	1.448	5.196	-589.454	#N/A	5.20	0.251	1.473	5.286	70.913	3.300
24-Oct	4.88	-0.244	1.448	5.196	-591.462	#N/A	5.20	0.251	1.473	5.286	69.607	3.200
25-Oct	4.88	-0.244	0.724	2.598	-590.149	#N/A	5.20	0.251	0.736	2.643	71.680	3.400
26-Oct	4.88	-0.244	0.724	2.598	-588.835	#N/A	5.20	0.251	0.736	2.643	73.753	3.500
27-Oct	4.88	-0.244	0.724	2.598	-587.521	#N/A	5.20	0.251	0.736	2.643	75.827	3.600
28-Oct	4.88	-0.244	0.724	2.598	-586.207	#N/A	5.20	0.251	0.736	2.643	77.900	3.800
29-Oct	4.88	-0.244	0.724	2.598	-584.893	#N/A	5.20	0.251	0.736	2.643	79.973	3.900
30-Oct	4.88	-0.244	0.724	2.598	-583.579	#N/A	5.20	0.251	0.736	2.643	82.046	4.000
31-Oct	4.88	-0.244	0.724	2.598	-582.265	#N/A	5.20	0.251	0.736	2.643	84.119	4.100
1-Nov	4.62	0.295	0.000	0.000	0.000	-2.000	5.31	1.140	0.000	0.000	0.000	-2.000
2-Nov	4.62	0.295	0.000	0.000	4.918	-1.600	5.31	1.140	0.000	0.000	6.450	-1.500
3-Nov	4.62	0.295	0.000	0.000	9.836	-1.200	5.31	1.140	0.000	0.000	12.900	-0.900
4-Nov	4.62	0.295	0.000	0.000	14.754	-0.700	5.31	1.140	0.000	0.000	19.349	-0.300
5-Nov	4.62	0.295	0.000	0.000	19.672	-0.300	5.31	1.140	0.000	0.000	25.799	0.200
6-Nov	4.62	0.295	0.000	0.000	24.590	0.100	5.31	1.140	0.000	0.000	32.249	0.700
7-Nov	4.62	0.295	0.000	0.000	29.508	0.500	5.31	1.140	0.000	0.000	38.699	1.200
8-Nov	4.62	0.295	0.000	0.000	34.426	0.900	5.31	1.140	0.000	0.000	45.148	1.700
9-Nov	4.62	0.295	0.000	0.000	39.344	1.200	5.31	1.140	0.000	0.000	51.598	2.100
10-Nov	4.62	0.295	0.000	0.000	44.262	1.600	5.31	1.140	0.000	0.000	58.048	2.500
11-Nov	4.62	0.295	0.000	0.000	49.180	2.000	5.31	1.140	0.000	0.000	64.498	2.900
12-Nov	4.62	0.295	0.000	0.000	54.098	2.300	5.31	1.140	0.000	0.000	70.948	3.300
13-Nov	4.62	0.295	0.000	0.000	59.016	2.600	5.31	1.140	0.000	0.000	77.397	3.700
14-Nov	4.62	0.295	0.000	0.000	63.934	2.900	5.31	1.140	0.000	0.000	83.847	4.100
15-Nov	4.62	0.295	0.000	0.000	68.852	3.200	5.31	1.140	0.000	0.000	90.297	4.100
16-Nov	4.62	0.295	0.000	0.000	73.770	3.500	5.31	1.140	0.000	0.000	96.747	4.100
17-Nov	4.62	0.295	0.000	0.000	78.688	3.800	5.31	1.140	0.000	0.000	103.196	4.200
18-Nov	4.62	0.295	0.000	0.000	83.606	4.100	5.31	1.140	0.000	0.000	109.646	4.500
19-Nov	4.62	0.295	0.000	0.000	88.523	4.100	5.31	1.140	0.000	0.000	116.096	5.100
20-Nov	4.62	0.295	0.000	0.000	93.441	4.100	5.31	1.140	0.000	0.000	122.546	5.200
21-Nov	4.62	0.295	0.000	0.000	98.359	4.100	5.31	1.140	0.000	0.000	128.996	6.600
22-Nov	4.62	0.295	0.000	0.000	103.277	4.200	5.31	1.140	0.000	0.000	135.445	6.900
23-Nov	4.62	0.295	0.000	0.000	108.195	4.500	5.31	1.140	0.000	0.000	141.895	7.200
24-Nov	4.62	0.295	0.000	0.000	113.113	4.700	5.31	1.140	0.000	0.000	148.345	7.500
25-Nov	4.62	0.295	0.000	0.000	118.031	5.100	5.31	1.140	0.000	0.000	154.795	7.900
26-Nov	4.62	0.295	0.000	0.000	122.949	5.300	5.31	1.140	0.000	0.000	161.244	8.200
27-Nov	4.62	0.295	0.000	0.000	127.867	5.500	5.31	1.140	0.000	0.000	167.694	8.500
28-Nov	4.62	0.295	0.000	0.000	132.785	6.800	5.31	1.140	0.000	0.000	174.144	8.800
29-Nov	4.62	0.295	0.000	0.000	137.703	7.000	5.31	1.140	0.000	0.000	180.594	9.100
30-Nov	4.62	0.295	0.000	0.000	142.621	7.300	5.31	1.140	0.000	0.000	187.044	9.400
1-Dec	5.06	0.608	0.000	0.000	148.291	7.500	6.05	0.550	0.000	0.000	193.644	9.700
2-Dec	5.06	0.608	0.000	0.000	153.961	7.800	6.05	0.550	0.000	0.000	200.245	10.000
3-Dec	5.06	0.608	0.000	0.000	159.631	8.100	6.05	0.550	0.000	0.000	206.845	10.300
4-Dec	5.06	0.608	0.000	0.000	165.301	8.400	6.05	0.550	0.000	0.000	213.446	10.600
5-Dec	5.06	0.608	0.000	0.000	170.971	8.600	6.05	0.550	0.000	0.000	220.047	10.900
6-Dec	5.06	0.608	0.000	0.000	176.641	8.900	6.05	0.550	0.000	0.000	226.647	11.200
7-Dec	5.06	0.608	0.000	0.000	182.311	9.200	6.05	0.550	0.000	0.000	233.248	11.500
8-Dec	5.06	0.608	0.000	0.000	187.981	9.500	6.05	0.550	0.000	0.000	239.849	11.800
9-Dec	5.06	0.608	0.000	0.000	193.651	9.700	6.05	0.550	0.000	0.000	246.449	12.100
10-Dec	5.06	0.608	0.000	0.000	199.321	10.000	6.05	0.550	0.000	0.000	253.050	12.400
11-Dec	5.06	0.608	0.000	0.000	204.991	10.200	6.05	0.550	0.000	0.000	259.651	12.700
12-Dec	5.06	0.608	0.000	0.000	210.661	10.500	6.05	0.550	0.000	0.000	266.251	12.900
13-Dec	5.06	0.608	0.000	0.000	216.331	10.800	6.05	0.550	0.000	0.000	272.852	13.200
14-Dec	5.06	0.608	0.000	0.000	222.001	11.000	6.05	0.550	0.000	0.000	279.453	13.500
15-Dec	5.06	0.608	0.000	0.000	227.671	11.300	6.05	0.550	0.000	0.000	286.053	13.800
16-Dec	5.06	0.608	0.000	0.000	233.341	11.500	6.05	0.550	0.000			

HISTORICAL CONNECTION GROWTH

WATER / SEWER CONNECTION VERIFICATION LETTERS

YEAR	January - June			July - December			Total Water	% Over Prev. Yr.	Total Sewer	% Over Prev. Yr.
	Water	Sewer	Both	Water	Sewer	Both				
1992	-	-	-	14	4	8	-	-	-	-
1993	17	4	15	28	2	13	73	-	34	-
1994	13	0	12	19	0	10	54	-26.0%	22	-35.3%
1995	17	1	14	20	15	7	58	7.4%	37	68.2%
1996	19	3	8	19	2	11	57	-1.7%	24	-35.1%
1997	29	1	19	28	2	5	81	42.1%	27	12.5%
1998	17	3	11	47	1	29	104	28.4%	44	63.0%
1999	27	3	10	41	1	34	112	7.7%	48	9.1%
2000	31	1	28	48	5	41	148	32.1%	75	56.3%
2001	38	3	38	50	2	23	149	0.7%	66	-12.0%
2002	34	4	36	43	5	44	157	5.4%	89	34.8%
2003	40	2	56	37	3	81	214	36.3%	142	59.6%
2004	38	1	57	35	1	54	184	-14.0%	113	-20.4%
2005	19	2	44	39	1	64	166	-9.8%	111	-1.8%
2006	16	1	31	33	2	38	118	-28.9%	72	-35.1%
2007	13	5	27	25	2	13	78	-33.9%	47	-34.7%
2008	9	4	21	14	2	12	56	-28.2%	39	-17.0%
2009									22	-43.6%
2010									28	27.3%
2011									10	-64.3%

ESFRs

ESFR	Growth Rate	Yrs
8038	0.27%	1
8060	0.46%	2
8097	0.30%	3
8121	0.33%	4
8148	0.54%	5
8192	0.59%	6
8240	0.91%	7
8315	0.79%	8
8381	1.06%	9
8470	1.68%	10
8612	1.31%	11
8725	1.27%	12
8836	0.81%	13
8908	0.53%	14
8955	0.44%	15
8994	0.24%	16
9016	0.31%	17
9044	0.11%	18

Avg. Annual Sewer
Growth in
Connections (Not
ESFRs)

0.65%

* Where both water and sewer connections were made on a parcel, the total annual connections are counted separately

Quartz Reservoir Capacity Table
Capacity in Acre Feet at Elevation

Spillway Crest = 1388.42' (48.15')

HWS El = 1386.42' (46.15')

Bottom of Staff Gauge = 1340.27' (0.0')

Invert of Outlet Gate = 1338.27' (-2.0')

NAVD88	NGVD29	Area	Interval Volume	Cumulative Volume	Staff Gauge	Capacity in Acre Feet at Elevation										
						0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
1340.71	1338.27	414217		0	0	-2	0.0	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9
1341.71	1339.27		22.06501	11.03251	-1	11.0	12.1	13.2	14.3	15.4	16.5	17.7	18.8	19.9	21.0	
1342.71	1340.27	546935	22.0650138	11.03251	0	22.1	23.4	24.8	26.1	27.5	28.8	30.2	31.5	32.9	34.3	
1343.71	1341.27		27.09226	13.54613	1	35.6	37.0	38.3	39.7	41.0	42.4	43.7	45.1	46.4	47.8	
1344.71	1342.27	633204	49.1572773	13.54613	2	49.2	50.7	52.3	53.9	55.5	57.1	58.6	60.2	61.8	63.4	
1345.71	1343.27		31.6416	15.8208	3	65.0	66.6	68.1	69.7	71.3	72.9	74.5	76.1	77.6	79.2	
1346.71	1344.27	745104	80.7988751	15.8208	4	80.8	82.6	102.5	104.3	106.1	107.9	109.7	111.5	113.3	115.1	
1347.71	1345.27		36.13694	18.06847	5	98.9	100.7	120.9	122.8	124.8	126.8	128.8	130.7	132.7	134.7	
1348.71	1346.27	829021	116.935813	18.06847	6	116.9	118.9	120.9	122.8	124.8	126.8	128.8	130.7	132.7	134.7	
1349.71	1347.27		39.3899	19.69495	7	136.6	138.6	140.6	142.5	144.5	146.5	148.4	150.4	152.4	154.4	
1350.71	1348.27	886803	156.325712	19.69495	8	156.3	158.4	160.5	162.6	164.7	166.8	168.9	171.0	173.1	175.2	
1351.71	1349.27		42.01274	21.00637	9	177.3	179.4	181.5	183.6	185.7	187.8	189.9	192.0	194.1	196.2	
1352.71	1350.27	943272	198.338453	21.00637	10	198.3	200.6	202.8	205.0	207.3	211.7	214.0	216.2	218.4		
1353.71	1351.27		44.64201	22.32101	11	220.7	222.9	225.1	227.4	229.6	231.8	234.1	236.3	238.5	240.7	
1354.71	1352.27	1001334	242.980464	22.32101	12	243.0	245.4	247.7	250.1	252.5	254.9	257.2	259.6	262.0	264.4	
1355.71	1353.27		47.52697	23.76349	13	266.7	269.1	271.5	273.9	276.2	278.6	281.0	283.4	285.8	288.1	
1356.71	1354.27	1068941	290.507438	23.76349	14	290.5	293.0	295.6	298.1	300.6	303.1	305.6	308.2	310.7	313.2	
1357.71	1355.27		50.43597	25.21799	15	315.7	318.2	320.8	323.3	325.8	328.3	330.9	333.4	335.9	338.4	
1358.71	1356.27	1128050	340.943411	25.21799	16	340.9	343.6	346.3	348.9	351.6	354.3	356.9	359.6	362.2	364.9	
1359.71	1357.27		53.22858	26.61429	17	367.6	370.2	372.9	375.5	378.2	380.9	383.5	386.2	388.8	391.5	
1360.71	1358.27	1190587	394.171993	26.61429	18	394.2	397.0	399.8	402.6	405.3	408.1	410.9	413.7	416.5	419.3	
1361.71	1359.27		55.87835	27.93918	19	422.1	424.9	427.7	430.5	433.3	436.1	438.9	441.7	444.5	447.3	
1362.71	1360.27	1243474	450.050344	27.93918	20	450.1	453.0	455.9	458.8	461.7	464.6	467.5	470.5	473.4	476.3	
1363.71	1361.27		58.28533	29.14267	21	479.2	482.1	485.0	487.9	490.9	493.8	496.7	499.6	502.5	505.4	
1364.71	1362.27	1295435	508.335675	29.14267	22	508.3	511.4	514.4	517.4	520.5	523.5	526.5	529.6	532.6	535.6	
1365.71	1363.27		60.68462	30.34231	23	538.7	541.7	544.7	547.8	550.8	553.8	556.9	559.9	563.0	566.0	
1366.71	1364.27	1347987	569.020294	30.34231	24	569.0	572.2	575.3	578.5	581.7	584.8	588.0	591.1	594.3	597.5	
1367.71	1365.27		63.20652	31.60326	25	600.6	603.8	606.9	610.1	613.3	616.4	619.6	622.7	625.9	629.1	
1368.71	1366.27	1405289	632.226814	31.60326	26	632.2	635.5	638.8	642.1	645.4	648.7	652.0	655.3	658.6	661.9	
1369.71	1367.27		65.98625	32.99312	27	665.2	668.5	671.8	675.1	678.4	681.7	685.0	688.3	691.6	694.9	
1370.71	1368.27	1469072	698.213062	32.99312	28	698.2	701.7	705.1	708.5	712.0	715.4	718.9	722.3	725.7	729.2	
1371.71	1369.27		68.80705	34.40352	29	732.6	736.1	739.5	742.9	746.4	749.8	753.3	756.7	760.1	763.6	
1372.71	1370.27	1528163	767.02011	34.40352	30	767.0	770.6	774.2	777.7	781.3	784.9	788.5	792.1	795.6	799.2	
1373.71	1371.27		71.52459	35.76229	31	802.8	806.4	809.9	813.5	817.1	820.7	824.2	827.8	831.4	835.0	
1374.71	1372.27	1587448	838.544697	35.76229	32	838.5	842.3	846.0	849.7	853.4	857.1	860.8	864.5	868.3	872.0	
1375.71	1373.27		74.27287	37.13643	33	875.7	879.4	883.1	886.8	890.5	894.2	898.0	901.7	905.4	909.1	
1376.71	1374.27	16477878	912.817562	37.13643	34	912.8	916.7	920.5	924.4	928.2	932.1	935.9	939.8	943.6	947.5	
1377.71	1375.27		77.00282	38.50141	35	951.3	955.2	959.0	962.9	966.7	970.6	974.4	978.3	982.1	986.0	
1378.71	1376.27	1706365	989.820386	38.50141	36	989.8	993.8	997.8	1001.8	1005.8	1009.7	1013.7	1017.7	1021.7	1025.7	
1379.71	1377.27		79.67805	39.83903	37	1029.7	1033.6	1037.6	1041.6	1045.6	1049.6	1053.6	1057.5	1061.5	1065.5	
1380.71	1378.27	1764411	1069.49844	39.83903	38	1069.5	1073.6	1077.7	1081.9	1086.0	1090.1	1094.2	1098.3	1102.4	1106.6	
1381.71	1379.27		82.34975	41.17487	39	1110.7	1114.8	1118.9	1123.0	1127.1	1131.3	1135.4	1139.5	1143.6	1147.7	
1382.71	1380.27	1822744	1151.84819	41.17487	40	1151.8	1156.1	1160.4	1164.6	1168.9	1173.1	1177.4	1181.6	1185.9	1190.1	
1383.71	1381.27		85.04132	42.52066	41	1194.4	1198.6	1202.9	1207.1	1211.4	1215.6	1219.9	1224.1	1228.4	1232.6	
1384.71	1382.27	1881656	1236.88951	42.52066	42	1236.9	1241.3	1245.7	1250.0	1254.4	1258.8	1263.2	1267.6	1272.0	1276.4	
1385.71	1383.27		87.7166	43.8583	43	1280.7	1285.1	1289.5	1293.9	1298.3	1302.7	1307.1	1311.4	1315.8	1320.2	
1386.71	1384.27	1939279	1324.60611	43.8583	44	1324.6	1329.1	1333.7	1338.2	1342.7	1347.2	1351.7	1356.3	1360.8	1365.3	
1387.71	1385.27		90.45232	45.22616	45	1369.8	1374.4	1378.9	1383.4	1387.9	1392.4	1397.0	1401.5	1406.0	1410.5	
1388.71	1386.27	2000824	1415.05843	45.22616	46	1415.1	1419.7	1424.4	1429.1	1433.8	1438.4	1443.1	1447.8	1452.5	1457.1	
1389.71	1387.27		93.48636	46.74318	47	1461.8	1466.5	1471.2	1475.8	1480.5	1485.2	1489.8	1494.5	1499.2	1503.9	
1390.71	1388.27	2071442	1508.54479	46.74318	48	1508.5	1513.2									